ENVIRONMENTAL PRODUCT DECLARATION

of multiple products based on the average results of the product group

In accordance with ISO 14025 and EN 15804:2012 + A2:2019/AC:2021 for:

TURVATIKAS SAFETY LADDER – VERTICAL PROFILE B

Eltel Networks Oy

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-11946
Publication date:	2023-12-19
Valid until:	2028-12-13

Products included in the average results:	
Profiles	**Product code**
Vertical Profile B	FITT1130
End Bow B 50	FITT3100
Side-End Bow B 50 SR/SL	FITT320L0, FITT320R0
End Bow PTBJ 59	FITT4590

1. General information

Company information

Owner of the EPD

Eltel Networks Oy
Laturinkuja 8
02650 Espoo
Finland

Description of the organization

Eltel is a leading service provider for critical electricity and telecommunications networks. Eltel's services enable the growth of renewable energy and high-speed telecommunication networks. Eltel designs, builds, and maintains more sustainable and more functional networks for current and future generations.

Additional information

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safetyladder@eltelnetworks.com
https://www.turvatikas.fi/start

Product information

Product name

Vertical Profile B, based on the average results of multiple profiles.

Production location

Salo, Finland

Programme information

Program operator, publisher

The International EPD® System, www.environdec.com

Program information

EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden,
E-mail: info@environdec.com

Standards and Product Category Rules

The declaration has been prepared in accordance with standards ISO 14025 and EN 15804:2012+A2:2019 and the additional requirements stated in the PCR for Construction products (version 1.3.1 dated 2023-07-08).

Author of the life cycle assessment and declaration

Ramboll Finland Oy, Itsehallintokuja 3, 02601 Espoo, Finland.

Date of publication and validity

Declaration issue date 2023-12-19. The declaration is valid 5 years, 2023-12-13 - 2028-12-13.

Verification

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serve as the core Product Category Rules (PCR)
Product category rules (PCR): *PCR 2019:14 Construction products, version 1.3.1 dated 2023-07-08., UN CPC code 412.*
PCR review was conducted by: PCR moderator: Martin Erlandsson, IVL Swedish Environmental Research Institute PCR committee: IVL Swedish Environmental Research Institute Secretariat of the International EPD® System
Life cycle assessment (LCA)
LCA accountability: Nea Ferin-Durie, nea.ferin-durie@ramboll.fi Ramboll Finland Oy, Itsehallintokuja 3, 02601 Espoo, Finland
Third-party verification Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: David Althoff Palm, Dalemarken AB Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ☒ No

Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period (see the GPI). The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update (see the GPI) is identified, the EPD shall be re-verified by a verifier.

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025

2. Product information

Products included in the EPD

This EPD is of multiple products based on the average results of the product group. Products included in the average are following:

Profiles	Product code	Weight (kg)
Vertical Profile B	FITT1130	14.6
End Bow B 50	FITT3100	146
Side-End Bow B 50 SR/SL	FITT320L0, FITT320R0	14.6
End Bow PTBJ 59	FITT4590	18.4

The profiles are manufactured from steel. All products contributing the average results presented in this EPD are hot-dip galvanized. The results are presented for one finished profile based on the average results of the product group.

More information on the products is available at https://turvatikas.fi/en/.

Description of product and its use

Turvatikas Safety ladder is an EN353-1:2014+A1:2017 certified fall protection system that prevents accidents and increases work efficiency. Eltel's fixed fall protection system has been enhancing working at heights for more than five decades. During the years, the production of the products has become an effective, responsible process. The system is trusted by national grids, mobile operators as well as chimney manufacturers. Turvatikas Safety ladders are used in overhead powerlines, telecom towers and other high structures.
The system consists of safety profile (Vertical Profile B), or safety ladders together with a climbing carriage. Vertical Profile B can be used as fall arrest system in locations where there is an existing ladder, as it can be mounted on top of the ladder. Vertical Profile B is also used as a base in all Safety Ladders.

Certifications and labels

The Management System of Eltel Networks Oy follows standards ISO 14001:2015, ISO 45001:2018 and ISO 9001:2015. Turvatikas Safety Ladder fall arrest system is certified under EN353-1:2014+A1:2017 and DIN 5U001.

UN CPC code

In the UN CPC system, the product is classified as 412 – Products of iron or steel

3. Content declaration

Raw materials of the product

The main material of the product is steel (> 99 weight-%).

Content Declaration

Product components	Weight, kg	Post-consumer recycled material, weight-%	Biogenic material, weight-% and kg C/kg
Steel	16.6 kg	0.003 %	0
Packaging materials	**Weight, kg**	**Post-consumer recycled material, weight-%**	**Biogenic material, weight-% and kg C/kg**
Wooden pallet/poles	0.001 kg	95 %	100 %, 0.44 kg C/kg

Information about recycled material

The recycled material content for steel varies depending on the supplier but remains low for Eltel's suppliers. The secondary material content in this EPD presented product is minor (< 0.5 weight-%).

Information about packaging

The profiles are packed on wooden pallets.

List of EU Chemicals Agency (ECHA) REACH SVHC substances contained in the product

The products do not contain substances which exceed the limits for registration with the European Chemicals Agency regarding the "Candidate List of Substances of Very High Concern for Authorisation".

4. LCA information

Declared unit
The declared unit is is one piece of finished product based on average results of multiple products. The average profile weights 16.6 kg.

Time representativeness
The data used to model product manufacturing corresponds to year 2022. The data from generic databases is from 2019 – 2022. The data from supplier specific EPDs is from 2023.

Geographical scope
This EPD is site specific (products are produced only at Eltel's production site in Salo, Finland).

Database(s) and LCA software used
The LCA was modelled using the LCA software *LCA for Experts* and the life cycle inventory datasets provided by Sphera.

Cut-off criteria
Packaging cardboard for fasteners was not taken into a consideration due to their small amount. No other flows had to be excluded from this assessment due to lack of detailed data.

Allocation
In this study, the input data on raw materials (A1) was collected in kg per piece of finished product, so no allocation was necessary. The input data concerning packaging material supply (A1) and manufacturing inputs and outputs (A3) – electricity, heating, fuel, water use and production waste – and product distribution (A4) was allocated based on the product weights and production volume shares in the studied period. Co-product allocation based on economic values was applied for steel scrap from the manufacturing stage (A3) Conservative approach was applied, and zero environmental burden allocated for the co-product. The information was received from Eltel Networks Oy. All allocations were mass based, excluding the co-product allocation.

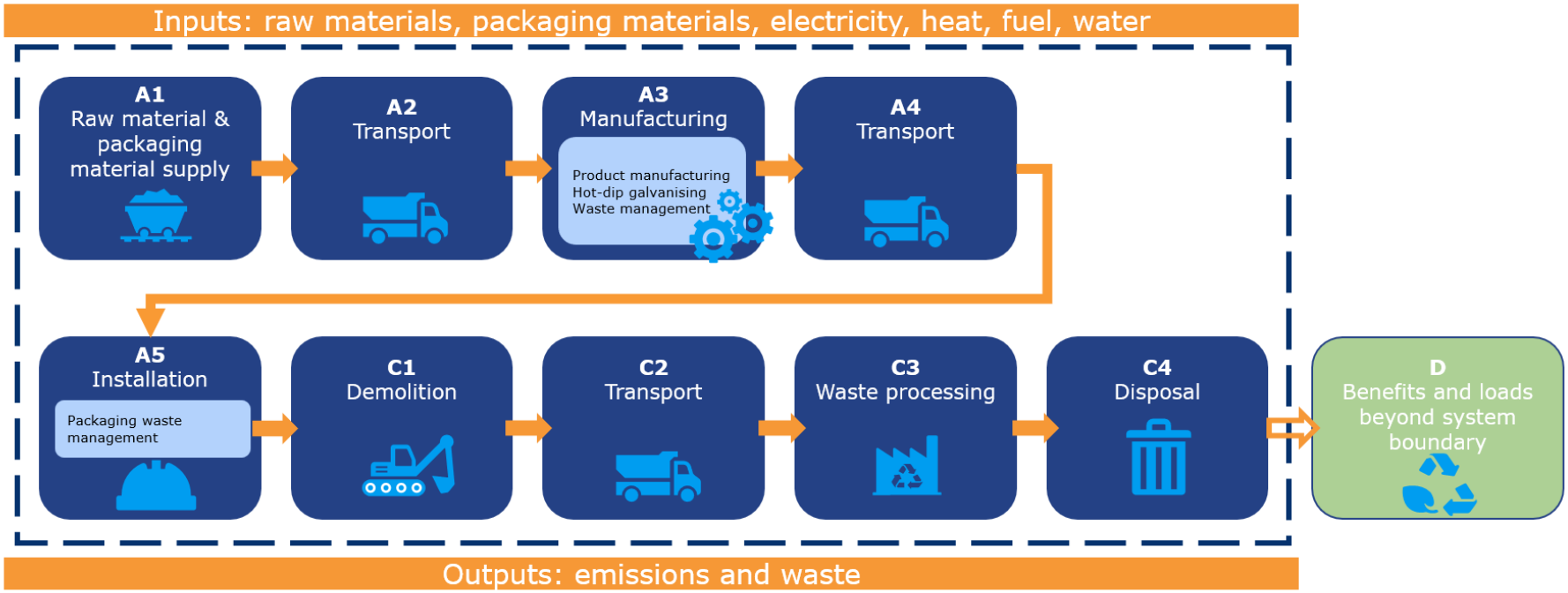
No other allocations were made in this assessment.

Data quality

Site-specific production data have been collected for 2022 from the production site. The upstream and downstream processes have been modelled based on environmental data from generic databases (Sphera) and based on supplier specific EPDs. The collected data was reviewed in terms of consistency, and it is estimated as good quality.

System diagram

The studied product system consists of the whole life cycle of the steel profile. The assessment covers the product stage (A1-A3), transport to the building site of the construction process stage (A4), packaging waste management from the installation stage (A5), the end-of-life stage (C1-C4) and benefits and loads beyond the system boundary (D). Modules B1-B7 are not included as they are considered not relevant. Machines and facilities (capital goods) required for and during production are excluded, as well as commuting.



Product life cycle

Production (A1-A3)
The product stage takes into account the manufacture of raw materials, their transportation to the production facility and the stages of the product manufacturing process.

A1: The production of raw materials includes the environmental impacts arising from the procurement, processing, and manufacture of all raw materials used in the product.
A2: Transportation of the raw materials to the production facility of Eltel Networks Oy, Salo, Finland. Specific transportation methods (truck or ferry) and actual distances are taken into account.
A3: Raw materials for production come from Finland, and the products are assembled at the company's production facility in Finland. The production phase uses electricity, heat, water, and forklifts consume diesel. Electricity is modelled based on the information provided by the supplier.

Transportation (A4)
Transportation of the finished products from the production facility. Real distances between the production facility and destinations are used.

Installation (A5)
In the installation stage the recycling of the packaging material is included in the assessment.

End of life cycle (C1-C4)
C1: The dismantling of the product is taken into account in the assessment, but the emissions occurred from the product dismantling is assumed to be negligible, as the product is dismantled manually.
C2: Transportation of the dismantled product for processing was assessed based on average waste transportation distance (121 km) in Finland.
C3: Eltel's products are assumed to go first to sorting and pressing before further processing. Following the current recycling practices, the life cycle assessment has been made based on the assumption that 90 % of the steel product will be recycled as material. None will go to energy recovery.
C4: As steel's recycling rate is assumed to be 90%, the remaining 10 % is assumed to end up in landfill.

Benefits and loads beyond the system boundary (D)
Materials delivered for material recycling can be used to make secondary material, thus avoiding the use of virgin raw material. The life cycle assessment has been made on the assumption that 90 % of the products' material ends up in material recovery at the end of the life cycle.

System boundaries

The system boundary was set at cradle-to-gate with modules C1–C4, module D and optional modules A4-A5. The life cycle stages included are described in the table below:

	Product stage			**Construction stage**		**Use stage**							**End-of-life stage**				**Non-life cycle impacts**		
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
Modules declared	☒	☒	☒	☒	☒	ND	ND	ND	ND	ND	ND	ND	☒	☒	☒	☒	☒	☒	☒
Module	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement of parts	Extensive repairs	Use of energy	Use of water	Demolition	Transport	Waste processing	Waste disposal	Reuse	Recovery	Recycling
Geography	EU	FI	FI, EU	Glo, EU	FI	-	-	-	-	-	-	-	-	FI	EU	EU	EU		
Specific data used	>90 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Variation - products	Presented in a separate table (Table 4-1).			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = Module declared ND = Not declared

	Compulsory modules in cradle to gate with options
	Optional modules by scenario

Table 4-1 GWP-GHG variation in A1-A3.

Profile	Variation
Vertical Profile B	< 10 %
End Bow B 50	< 10 %
Side-End Bow B 50 SR/SL	< 10 %
End Bow PTBJ 59	25 %

5. Environmental and resource use indicators

In the following tables the potential environmental impacts are reported per the declared unit and per life cycle stage. The impact categories presented here are consistent with the reference PCR. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The use of the results of modules A1-A3 is discouraged without considering the results of module C. Note, the variation between the average results and each product is significant (Table 4-1) and the results do not scale directly with product weight.

The results are presented in scientific form. Data interpretation example: 1.31E-2 = $1.31*10^{-2}$ = 0.0131

According to the EN 15804 standard, environmental declarations for construction products may not be comparable if they have not been prepared in accordance with that standard or if a different notified unit has been used.

5.1 Turvatikas Safety Ladder – Vertical Profile B

Potential environmental impacts

Environmental impact category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Global warming potential (GWP) – fossil	kg CO_2 eq.	4,40E+01	1,42E+00	5,40E-05	0,00E+00	1,73E-01	4,08E-01	2,45E-02	-4,88E+00
Global warming potential (GWP) – biogenic	kg CO_2 eq.	-4,30E-02	0,00E+00	4,30E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Global warming potential (GWP) – luluc	kg CO_2 eq.	3,08E-02	9,84E-03	1,54E-07	0,00E+00	1,63E-03	7,79E-04	7,73E-05	-8,08E-04
Global warming potential (GWP) – total	kg CO_2 eq.	4,40E+01	1,43E+00	4,30E-02	0,00E+00	1,75E-01	4,08E-01	2,46E-02	-4,88E+00
Ozone depletion (ODP)	kg CFC11 eq.	6,81E-07	1,59E-13	1,07E-16	0,00E+00	2,28E-14	5,50E-08	6,33E-14	-9,44E-11
Acidification (AP)	mol H^+ eq.	1,54E-01	6,58E-03	5,54E-07	0,00E+00	7,23E-04	4,93E-03	1,77E-04	-1,30E-02
Eutrophication (EP) – freshwater	kg P eq.	4,47E-03	3,95E-06	1,06E-10	0,00E+00	6,42E-07	2,62E-04	5,01E-08	-2,11E-05
Eutrophication (EP) – marine	kg N eq.	3,69E-02	3,09E-03	1,58E-07	0,00E+00	3,38E-04	1,12E-03	4,56E-05	-3,42E-03
Eutrophication (EP) – terrestrial	mol N eq.	4,02E-01	3,43E-02	2,42E-06	0,00E+00	3,78E-03	1,25E-02	5,02E-04	-3,64E-02
Photochemical ozone formation (POCP)	kg NMVOC eq.	1,05E-01	6,84E-03	4,00E-07	0,00E+00	6,53E-04	3,45E-03	1,38E-04	-1,30E-02
Depletion of abiotic resources (ADP) – minerals & metals*	kg Sb eq.	1,63E-03	7,42E-08	2,58E-12	0,00E+00	1,16E-08	4,91E-05	1,15E-09	-9,24E-07
Depletion of abiotic resources (ADP) – fossil fuels*	MJ	5,68E+02	1,96E+01	8,19E-04	0,00E+00	2,39E+00	6,19E+00	3,31E-01	-6,50E+01
Water deprivation potential (WDP)*	m^3e depr.	4,77E+00	1,34E-02	2,61E-04	0,00E+00	2,12E-03	1,31E-01	2,73E-03	-3,62E-02

*The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

Resource use

Resource use indicators	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)	MJ	6,83E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable primary energy resources used as raw materials (PERM)	MJ	3,52E-01	0,00E+00	-3,52E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PERT)	MJ	7,18E+00	0,00E+00	-3,52E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)	MJ	1,62E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) (PENRT)	MJ	1,62E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of secondary material (SM)	kg	5,43E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of renewable secondary fuels (RSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water (FW)	m^3	1,15E-01	2,39E-02	6,20E-06	0,00E+00	1,91E-04	3,05E-03	8,37E-05	-3,30E-02

Waste categories

Waste category	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	2,08E-02	1,02E-08	2,19E-14	0,00E+00	7,43E-12	0,00E+00	7,22E-12	7,90E-09
Non-hazardous waste disposed (NHWD)	kg	2,36E+00	3,82E-01	3,45E-05	0,00E+00	3,66E-04	0,00E+00	1,66E+00	-2,69E-03
Radioactive waste disposed (RWD)	kg	2,41E-02	4,76E-03	4,41E-08	0,00E+00	4,49E-06	0,00E+00	3,77E-06	-4,81E-03

Environmental information describing output flows

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling (MFR)	kg	1,40E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	14,92E+00	0,00E+00	0,00E+00
Material for energy recovery (MER)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity (EE)	MJ	1,81E-01	0,00E+00	3,44E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal (EET)	MJ	3,01E+00	0,00E+00	1,44E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Supplementary indicator for climate impact

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG	kg CO_2 eq.	4,40E+01	1,43E+00	5,42E-05	0,00E+00	1,75E-01	4,08E-01	2,46E-02	-4,88E+00

Biogenic carbon content

Biogenic carbon content	Amount per declared unit
The amount of biogenic carbon in the product	0 kg C
Amount of biogenic carbon in packaging	0,01 kg C

6. Scenarios and additional technical information

Additional technical information, energy use in manufacturing (A3)

Variable	Amount
Quality of electricity information	Supplier specific information.
CO_2 emission factor for electricity	0.0045 kg CO_2 eq. /kWh
Quality of heating data	Generic information: Thermal energy from biomass (solid)
CO_2 emission factor for heating	0.0027 kg CO_2 eq. /kWh

Additional technical information, transport to the site (A4)

Variable	Amount	Data quality
Fuel type and consumption of the vehicle used or type of vehicle, e.g. truck, ship, etc. dm3/km or vehicle type	diesel 0.02 kg/tonne*km	Truck, Euro 5, 28 - 32t gross weight / 22t payload capacity (with SCR) Sphera
	kerosene 52.2 kg/tonne*km	Cargo plane, 65 t payload Sphera
Transportation distance (declared average or exact data)	- 14 909 km by truck - 6 312 km by airplane	total transport distance
Capacity utilization rate	Truck: 61 % Airplane: 66 %	
Bulk density of transported products	varies according to the product	
Volume capacity utilization factor (factor = 1 or <1 or ≥1 for compressed or nested packaged products)	not applicable	

7. References

EN 15804:2012+A2:2019/AC:2021 Sustainability in construction works – Environmental product declarations – Core rules for the product category of construction products.

EPD International AB (2021) General programme instructions for the International EPD System. Version 4.0. 2021-03-29.

EPD International AB (2021) Product category rules (PCR 2019:14) Construction products. Version 1.3.1 dated 2023-07-08.

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ISO 14025:2010 Environmental labels and declarations – Type III environmental declarations Principles and procedures.

ISO 14040:2006 Environmental management. Life cycle assessment. Principles and frameworks.

ISO 14044:2006 Environmental management. Life cycle assessment. Requirements and guidelines.

Ramboll Finland Oy, 2023. Eltel Networks Oy, Turvatikas Safety Ladder - Life cycle assessment report.